

ALISON ON
ORGANIC ALTERATIONS
OF THE HEART

SOME OBSERVATIONS

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SOME OBSERVATIONS
ON
ORGANIC ALTERATIONS
OF THE
H E A R T;
AND PARTICULARLY ON THE
BENEFICIAL EMPLOYMENT OF IRON
IN THE TREATMENT OF SUCH CASES.

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&c. &c.

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P R E F A C E.

THE Author ventures to lay before his professional brethren the following Observations and Cases, with the hope that they may prove useful.

Some facts have lately come under his notice, which show that cases of organic alteration of the heart may be more extensively benefited by medical treatment than he had previously been aware of; or, if he be not mistaken, than is perhaps credited by the profession generally; and that iron may be administered with advantage in a larger proportion of such cases than is done at present.

Some general reflections on the nature of organic alteration of the heart have been given,

for the purpose of pointing out the leading indications in the treatment in a clear and intelligible manner.

The hope is entertained, that the publication of these cases and observations may lead to a somewhat more encouraging view of organic alteration of the heart, as well as to a more extensive use of iron, conjoined, of course, with suitable regimen, and other auxiliaries, in a form of disease, which has hitherto been held to be very much beyond the reach of art.

FITZROY STREET, FITZROY SQUARE,
April, 1845.

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SECTION I.

Recent advance in the physiology and pathology of the heart.—

The treatment of organic alteration too generally of a lowering character.—Main causes of this,—too exclusive regard to abating inordinate action and nutrition.—Prognosis unnecessarily gloomy.

SINCE the days of the immortal Harvey, the discoverer of the circulation of the blood, great and important accessions have from time to time been made by his successors, to the knowledge of the anatomy and physiology of the heart. Much additional light has also of late been thrown upon the nature, causes, and consequences of the diseases of that organ*. Nor has the treatment of the affections of the heart remained stationary, but,

* Vide a paper in the London Medical Gazette for Feb. 1845, by the Author, entitled, "Pericarditis, a complication and sequela of Scarlatina."

making nearly equal strides with other branches of knowledge, it has year by year been more and more improved.

So perfect is the mode of treatment now pursued in acute inflammation of the heart, the parent action of almost all the morbid alterations of the organ that are known, that if adopted at an early period of the disease, in good earnest, and carried out in the same spirit, a successful issue may confidently be looked for in a large majority of instances, and organic lesion prevented, or very effectually restrained.

It is a question with the author whether the treatment of organic alteration of the heart be equally as satisfactory. He ventures to think that it is not. Perhaps, as recommended by many able physicians, as well in their lectures as in their published works, there is no room to form a decision adverse to the mode of treatment generally proposed in organic alteration of the heart. Yet the treatment of the various conditions grouped under the head of organic alteration of the heart, the author feels satisfied, as practically carried out, does not admit of a very favourable comparison with the treatment of acute inflammation of that organ.

He would here speak with that caution which so

well becomes him ; but conceiving it a duty, when a physician writes at all, that he write candidly, the author ventures to say that cases of organic lesion, taken in the aggregate, do not meet with that measure of well-directed scientific treatment which is accorded to the great parent action, viz. inflammation.

He has seen within the last ten years, and even the last few months, an indiscriminate employment of foxglove, bleeding, and antiphlogistic regimen, in organic alterations of the heart. There has been a want of discrimination in the treatment, a comparative absence of sound notions in different circumstances of the indications. The practice has rarely been sufficiently adapted to the peculiar exigencies of the individual case as to merit the title of *adjusting* practice. The mind of the practitioner, as it has seemed to the writer, has appeared too full of the idea that *the* object, in every instance, was to abate inordinate action and nutrition. This has so worked as almost to exclude other indications, and thus it is that foxglove, bleedings, and generally lowering practice, have been so much employed.

Be this, however, as it may, there can be little doubt but that the practice which has been pursued in organic alteration of the heart has not been

singularly successful. The subject of this disease has generally appeared to the author a person of shattered health, enfeebled, desponding, and looking to death as the only means by which his sufferings could be brought to a period. Nor has this desponding view been confined to the patient, but, as the writer has observed, has very commonly extended to the practitioner also.

The powers of medicine under this view have been underrated. Medicine, carefully adjusted to the peculiarities of individual cases, calculated efficiently to fulfil the proper indications, may, certainly do, more than merely smooth the pillow of the dying man, or snatch a thorn from his uneasy side.

It is an encouraging fact, that in numerous examinations of the bodies of persons who had attained to the age of eighty years, and who had given few or no signs of cardiac disease, the heart has been found very much altered in structure.

SECTION II.

Treatment, to be fully successful, should fulfil the various indications.—The relief of organic alteration attainable best by an adjusting practice.—In practice, a leading indication is the imparting of vigour to the heart and system.—Relieving practice of great practical importance — compared with curative practice.

FOR the treatment of organic alteration of the heart to be as fully efficient as possible, it must fulfil all the indications which enlightened physiology and pathology supply. These indications are numerous. The most prominent are the removal or abatement of the primary obstacle to the circulation, the repression of inordinate nutrition, the prevention or abatement of dilatation, and the maintenance of hypertrophy at that point necessary to meet wants of the system, when undue resistance to the circulation is to be overcome.

For the fulfilment of these indications, the employment of foxglove, bleedings, and the anti-phlogistic regimen, alone, are very inadequate. A mode of treatment is demanded, which, while it shall relieve the heart of oppression or conges-

tion, and repress inordinate nutrition, shall lend healthful vigour to that organ, and to the system generally.

With such an adjusting practice as that to which the author has briefly alluded, he fears not to say that the relief and palliation of organic disease are not less attainable than the cure of pericarditis under the abstraction of blood, and the use of mercury.

In practice it will be found, that the imparting of vigour to the heart and system is an indication of the greatest importance, and in numerous instances this will be effected in a most efficient manner by the use of iron.

Iron is capable of improving the health of the subject of organic alteration of the heart in a surprising manner, and greatly amending the condition of the organ which is especially in fault. These purposes iron can effect to an extent, and in a large proportion of cases, there is reason to believe, not fully familiar to the profession at large, though the beneficial action of iron in organic alteration of the heart is well known to many physicians.

Doubtless it is true, that this agent cannot restore the enlarged heart to its normal size; nevertheless, if it enable that enlarged heart to perform

its office in an improved manner, consistent with the enjoyment of health for some, perhaps many, years, it possesses much of the practical value of a really curative remedy.

To afford, as the author believes iron can, in cases of organic alteration of the heart, ease to the laboured respiration, calmness and vigour to the palpitating and over-matched heart, comparative freedom from flatulent distension of the stomach, and an accession of strength to the entire system,—are desiderata, the value of which none will pause to question who have stood in need of them.

The patient who is thus happily relieved will be ready to acknowledge that medicine, even for him, has had her blessings in store. He will even conclude his lot, afflicted though he be with incurable organic alteration, more favoured, than that of the hourly sufferer from the languors, the aches, and ailments, of protracted functional disorder.

It is not long ere the student, who has hitherto studied books only, finds at the sick bed of the patient that the *cure* of disease is not the only important object of the physician. He soon discovers, when brought into actual contact with the sick, that the *relief* of disease is another object of vast importance, and that in numerous in-

stances, and whole groups of cases, this is the chief attainable end.

Nor is his discovery complete if he has decided that this relief, though the only attainable end, is one really of little consequence. His discovery is incomplete if he restricts the meaning of the word relief to a very temporary abatement of paroxysms of pain, to the procuring of sleep on an occasion, or other partial and transient result.

In the course of years, and as, in his collision with suffering humanity, his experience increases, the relief of disease acquires more and more importance. He finds that it may be extended, where, previously, he had concluded it could not reach. He finds it a far more extensive and permanent blessing than he had formerly believed. The relief of disease comes at length to be of almost equal practical importance in his eyes with the cure.

Iron is recommended under the warrant of experience as calculated to afford in a pre-eminent manner this relief in its broadest signification.

But it must not be forgotten that the exhibition of this agent can fulfil only some indications, and that in most instances of organic alteration

of the heart there are other indications, which require the employment of other means.

However useful the exhibition of iron may be in cases of organic alteration of the heart, it must ever be remembered that it is only in some instances this remedy is applicable, and that in every instance there may occasionally arise circumstances which preclude its employment.

SECTION III.

Increased resistance to the circulation.—Narrowing of outlets of the heart.—Morbid conditions of the valves.—Resistance seated at a distance: emphysema; distortion of spine and thorax; tumors. — Displacement of heart; rough condition and adhesions of pericardium.

IN a very large majority of instances of organic alteration of the heart, the morbid change has arisen from the presence of some obstruction to the free passage of the blood through the heart, or to some difficulty which that living forcing-pump experiences in its efforts to propel the blood through its interior, and along the aorta and pulmonary artery.

A common form of obstacle is a narrowing of one or more of the outlets of the four cavities of which the interior of the heart consists, which, for the most part, is the result of inflammatory action.

Another form of obstacle is a thickened condition of the valves, and a warty state of these appendages, the result of inflammation, by which they obstruct the passage of the blood. The valves are occasionally rendered incapable of closing their respective orifices, and of preventing the

regurgitation of the blood, by corrugation, and also by shortening of the chordæ tendinæ, in the case of the mitral and of the tricuspid valves.

The seat of the obstacle being in the valves, the impediment may be of another kind. A common cause of difficulty to the circulation, particularly at an advanced age, is a thickened and less mobile condition of the valves, particularly of the mitral and aortic, arising from the presence of calcareous deposit, sometimes the consequence of inflammatory action, but more frequently of an action which seems almost natural at advanced periods of life. This condition both presents an obstruction to the passage of the blood from the heart, and offers a facility to regurgitation into that organ.

That condition of the arteries marked by a diminution of elasticity, and connected with a degeneration of, or calcareous deposit in, their coats, proves, in old age, a not infrequent cause of organic alteration.

Dilatation, or aneurism of the aorta, is another not infrequent cause of difficulty to the transit of the blood. The obstruction to the passage of the blood may not be confined to the heart itself, or to its immediate appendages, but may exist at a distance, and in other organs. Disease of the lungs

may act in this way; and indeed emphysema, asthma, and chronic catarrh, which cause a remarkable obstruction to the pulmonary circulation, are not unfrequently found to be productive of organic alteration of the heart. Distortion of the spine, tumours, chiefly in the abdomen, pressing upon the aorta, or preventing the descent of the diaphragm, may give rise to the same evil.

An unusual difficulty to the free motion and play of the heart itself leads occasionally to organic alteration. This difficulty is apt to arise from displacement of the organ, whether this be congenital or the result of disease in the adjoining parts. Adhesions of an intimate and close kind, subsisting between that portion of the pericardium which invests the heart and that portion which is free, present an obstacle to the circulation. By means of these adhesions, the heart is restrained in its movements, and is, as it were, tied down. That rough condition of the pericardium which results from the effusion of coagulable lymph during inflammatory action, and those white patches which are occasionally found upon the heart, cause more or less difficulty in the motion of the organ. The friction is greatly increased, and the easy gliding motion of the heart is exchanged for a rough and somewhat

obstructed movement. Increased resistance to the circulation of the blood through the heart is occasionally produced by external mechanical causes. The use of tight stays, by preventing the due expansion of the chest, and the descent of the diaphragm, thus impeding the circulation of the blood through the lungs, leads to the development of organic disease of the heart.

In all the instances of organic alteration of the heart proceeding from the above-mentioned causes, there is in operation a preternaturally great amount of resistance to the transmission of the blood through that organ.

SECTION IV.

Results of increased resistance.—Dilatation a purely morbid result — Hypertrophy frequently a salutary condition.—
Dilatation favoured, hypertrophy checked, by debility.

THE organic alteration of the heart, the result of these causes of increased resistance, when analysed, is found to be divisible into two great forms—viz. dilatation and hypertrophy.

The dilatation of the heart, or increase in the capacity of one or more of the chambers of the organ, is a purely morbid result of the accumulation of the blood, consequent upon increased resistance to its transit, and is a measure of the yielding of the heart to the increased pressure upon its walls.

The hypertrophy or thickening of the walls themselves, is a salutary result, effected on the part of the heart, to meet the preternatural resistance to the circulation, and its amount may be viewed as a measure of the provision of the heart against the obstruction.

Though dilatation and hypertrophy, as a general rule, bear some proportion to the amount of

increased resistance to the circulation, yet in many instances they imperfectly correspond with it. Thus they are much affected by the vigour of the heart and of the system generally. Dilatation is favoured by debility, whilst hypertrophy is promoted by the opposite condition.

Dilatation, the result of increased resistance to the transmission of blood, furnishes, unhappily, in itself, a fresh source of difficulty to the already embarrassed circulation; for when a spheroidal cavity is somewhat distended, an increase of power is required to discharge, through a given orifice, a given quantity of fluid in the same time.

With hypertrophy it is different, for instead of increasing difficulties, it even tends to overcome that difficulty which called it into existence, and thus to maintain the circulation.

From this comparative view of the nature and relations of dilatation and hypertrophy, it is easy to perceive that dilatation is an unqualified evil, effecting no good, increasing the difficulties of the circulation, and is a condition to be restrained; and that hypertrophy is a beneficial condition, though, perhaps, not always of an unqualified kind, to be maintained under certain limitations, as an appropriate provision against the obstacles to the circulation.

SECTION V.

Organic alteration of heart without obvious increased resistance to the circulation.—Dilatation, with debilitated heart.—Hypertrophy, the result of inordinate nutrition, consequent upon pericarditis or carditis.

IN some highly interesting instances of organic alteration of the heart, and which form a very appropriate subject for comment in these pages, there is to be discovered no real increase of resistance to the transmission of blood through the heart. But though there is no real, there is a virtual increase of resistance, and the result is the same as if there were a real and substantial obstruction.

The case is simply this: with the usual amount of resistance only to overcome, the powers of the heart to overcome that resistance are abnormally low. The heart is feeble, of low vitality, the blood is imperfectly discharged; this fluid accumulates in the chambers of the heart, and, pressing upon the flaccid walls, causes them to yield, and thus produces dilatation.

This form of organic alteration of the heart is observed chiefly in the anæmie and the valetudinarian, and is singularly benefited by iron.

Before concluding these observations, it will make the view less imperfect if a little notice be here taken of another form of organic disease of the heart.

With no appreciable increase of resistance to the transmission of the blood through the heart, that organ becomes the seat of thickening in its walls, and of great increase in its volume. The action is heaving, unduly forcible, and the blood is propelled along the arteries with inordinate violence. The author has met with several instances of this form of organic alteration, in which, neither before nor after death, could any signs of obstruction be discovered. The last case he met with was accompanied by albuminuria. The heart was simply hypertrophied, and weighed nearly double the usual weight of that organ. This form of disease probably owes its origin to an irritable condition of the heart, leading to increased activity, and occasionally resulting from inflammatory or sub-inflammatory action, either of the common or of a specific character. If this view be correct, the disease is analogous to the hypertrophy of the muscular coat of the urinary bladder, which occasionally follows attacks of inflammation of that organ.

In this form of organic alteration, the hyper-

trophy is not that salutary condition which it is in the other forms that have been noticed. Here it is a decided evil, and as such, to be restrained. Iron is not admissible, except under very uncommon circumstances, and an opposite mode of treatment is demanded.

From the preceding account of the causes and nature of organic alteration, it appears that, in the treatment, three main points are particularly deserving attention. These three points are—1st, the source of increased resistance to the transmission of blood through the heart; 2nd, the dilatation which results from the accumulating blood; and 3d, the hypertrophy or thickening of the walls of the heart.

In almost all instances, some source of increased resistance is to be discovered; in most instances there is dilatation; in almost every instance there is more or less hypertrophy. In a few cases no hypertrophy is found, and, together with great dilatation, there is present more or less attenuation of the walls of the heart, sometimes with obvious degeneration of structure.

SECTION VI.

The main indications in the treatment.—Abatement of source of increased resistance to the circulation.—Effused lymph may be absorbed.—Inflammatory action to be thoroughly extinguished.—Irritability subdued by the external and internal use of sedatives.—External mode of application.—Important to gain time, and to stimulate the absorbents.—Iodine and iron.—The iodide of iron.

FROM the knowledge which we now possess of the nature of organic alteration, it is very obvious that the main indications in the treatment are, the removal or abatement of the source of increased resistance to the circulation,—the prevention and restraining of dilatation,—the maintenance of the hypertrophy of the walls of the heart at that point suitable to the wants of the embarrassed circulation,—the invigorating of the enfeebled or attenuated organ, and, in a few instances, the abatement of the nutrition and activity of the heart, when these are abnormally increased, without there being present an increased resistance to overcome.

The term hypertrophy of the heart, which, not very long ago, was very vaguely accorded to most instances of organic alteration of the heart,

was by no means calculated to lead to a correct analysis of the conditions of that organ in any given case. It was calculated to lead to a very coarse and very indiscriminating view of organic alteration. Strictly interpreted, it meant that thickening of the walls of the heart, and that thickening only, which, in a very large majority of cases, was not the disease, but the condition which nature had established to counteract, are increased resistance to the circulation. It does not appear improbable that the use of this title, calling almost exclusive attention to the increased thickness of the walls, may have contributed to that very general leaning to depleting and lowering means which characterised, almost universally, the treatment of organic alteration of the heart some years ago.

The removal or abatement of the primary source of increased resistance to the circulation, is an object which, however difficult and apparently impracticable in some instances, should nevertheless never be overlooked by the practitioner.

To give this object full consideration, will doubtless put the practitioner to some trouble and exertion, and it will sometimes happen without any material advantage to the patient. Yet benefit to the patient will often accrue, while the

practitioner will acquire habits of diligent examination. The practitioner will, in this way, gain a discriminating knowledge of disease, and be enabled to reject that slovenly mode of practice in individual cases, which is based upon a general rule, perhaps ill founded, and liable to many exceptions. And this is the more necessary, because the interests of the patient are concerned. Let the practitioner canvass his hopes and fears in a given case, by the signs and symptoms of that case as presented to him. Let him have specific grounds for the hope, or the want of hope, with which he regards any individual case. If he will only make the necessary inquiry for this purpose, in every instance which presents itself to him, he will not unfrequently find a case he would previously have regarded as hopeless, to be susceptible of material improvement.

When pulmonary disease has been the source of increased resistance, every circumstance should be avoided which is calculated to increase or aggravate the disorder. Paroxysms of dyspnœa, violent fits of coughing, and exposure, should be carefully avoided.

Distortion of the spine, ribs, and sternum, should meet with suitable treatment, in order that

the heart and great vessels may be relieved from undue pressure.

Adhesions of the pericardium may in the course of time be elongated, attenuated, or even absorbed. Narrowing of the outlets of the heart, the result of effusion of lymph, warty excrescences upon the valves, which are simply exudations of lymph, may be also in whole or in part removed.

Doubtless it would be unwise in any member of the profession at all solicitous for the dignity of the healing art, or for his own reputation, rashly to express hopes for results held for the most part as unattainable. It is, therefore, not without some consideration that the author of these pages ventures to say, that time and judicious treatment will occasionally succeed in removing, either in part or wholly, the lymph which is thrown out at the orifices of the heart and upon the valves, by inflammatory action, and which, in numerous instances of organic alteration of the heart, forms the source of the increased resistance to the circulation of the blood.

The increase of freedom of the heart's action, which he has observed to take place after pericarditis, the diminution of rasping and bellows sounds, which he has noticed in cases of valvular

disease, seem to indicate that lymph had been absorbed.

Moreover, lymph is known to be absorbed in other situations ; thus the air-cells of the lung, solidified by the presence of lymph, not unfrequently regain their proper cellular structure.

When the exudation of lymph is recent, it will be necessary to ascertain whether the parent action be extinguished. When there are no signs of inflammatory action, it will suffice for some time to keep the patient quiescent, to regulate the diet, to allay irritability of the heart by the administration of hyoseyamus, eonium, or digitalis, and to promote the secretions.

But when signs, though ill pronounced, of inflammatory action, or of subinflammatory action, are discovered, suitable means must forthwith be put in practice to extinguish this dangerous condition. Nor will an abatement of the symptoms suffice to satisfy the practitioner. There must be conclusive grounds for a confident assurance that the evil is not only checked, but that it is entirely overcome. Leeches applied to the præordia will be necessary ; mereury should be used both internally and externally. Counter-irritation will not unfrequently extinguish the last spark of the internal fire.

The irritability, and excessive action dependent upon this, which are wont to succeed inflammation of the heart or its membranes, may be moderated by outward applications. By this mode of treatment, the disorder of the stomach and bowels, and other evils which are wont to follow the internal exhibition of sedatives, are avoided. Warm water fomentations, applied to the præcordia for some hours, are useful in allaying the morbid irritability, and in assuaging the sense of distress and tightness often experienced at that region. A flannel bag, containing a small quantity of bran sufficient to form only a moderate layer, moistened with warm water, and covered with oil silk, will answer the purpose exceedingly well. Over the oil silk, warm dry flannel may be placed. When the distress is great, and the application of outward heat is felt to afford relief, the heat of the fomentation may be advantageously heightened by placing over the flannel bag containing the moistened bran, a thin and light vessel of tin, about the size of a saucer, containing water at a temperature, more or less, above that of the body, as circumstances may require. The fomentation may be rendered still more powerful by the bran being moistened with water holding in solution the sedative principles

of opium and other narcotics. Or, instead of bran being employed, a piece of lint or flannel may be simply dipped in a solution of morphia or other sedatives, and applied to the præcordia. Over this, the oil silk only, or the tin with or without the oil silk, may be placed, as circumstances seem to demand.

The inflammatory action having been extinguished some time, and the irritability of the heart having been subdued, the removal of the obstructing lymph may now be attempted. Time alone, the author believes, will effect much. The new structure, unlike some morbid deposits, possesses no power of reproduction. The absorbent vessels may be expected to take up the obstructing material. Two special indications present themselves. The first is, to gain time; and this will be best effected by treatment adapted to the exigencies of the case. A primary object in a large proportion of cases will be found to be, the imparting of vigour to the system in general, and to the heart in particular. It is here that iron will be found to be most efficacious; but the conditions demanding this agent will be shortly explained in detail.

The second indication is to increase the activity of the absorbent vessels. Mercury is one

of the most active deobstruents, but its continued use being so prejudicial to the system, renders it an unsafe remedy. Iodine is very active, also, as a deobstruent, but exhibited alone for any length of time, it is liable to the same objection as mercury. In the case of iodine, the evil may be in part overcome by judicious combination, and happily the form of combination, which has appeared to the author most free from the objection which has been pointed out, is that with the very agent, viz. iron, which has just been mentioned as so highly useful in fulfilling the first indication, viz. the gaining of time. This is a fortunate circumstance. The author has, in many instances of organic alteration of the heart, and of other forms of disease, exhibited the iodide of iron for weeks and months together without once having observed any, the slightest disadvantage. The iodide of iron, then, will fulfil the two special indications. It will give a gentle impulse to the absorbents, and, by the remarkable invigoration of the system which follows its exhibition, enable us to gain the time which is so necessary for the removal of deposits by these vessels.

SECTION VII.

Dilatation to be checked—danger of laceration—tonic treatment demanded—iron specially applicable.—In dilatation, combined with obstructive lymph, the iodide of iron suitable.—Combined with anæmia, &c. the *Mistura Ferri C.* most applicable.—Diet.

DILATATION is to be cured or checked by an invigorating plan of treatment. It is highly important to attend to this object, for dilatation not only increases the difficulties of the circulation, as has been already explained, but is attended by risk of laceration of the heart. The thin parietes of the heart may give way, and cause in this manner instantaneous death. In the case of George the Second, who died suddenly, the heart was ruptured, and the same condition has been found in many other instances.

It has already been mentioned that dilatation is much promoted by laxity and debility of the heart. It is, therefore, desirable to strengthen this organ. This, fortunately, may be done. It is a law, that a given muscle increases in size and in strength as its action is increased—the general health being good. Now, there is no want of

action of the heart in cases of dilatation, there being in almost every instance an increased, though comparatively feeble, activity. But the general health for the most part is impaired. The entire system is feeble; the bodily structures are lax and ill elaborated, and the muscles in particular deficient in tonic contractility. The organs of sanguification but ill discharge their offices; dyspepsia frequently presses, and the chyle and the blood are neither abundantly formed nor well elaborated. The defect, then, is not in the amount of activity of the heart, but in the general health.

Now, a question arises,—are we in possession of any means by which the defect in the general health, denoted by the characters which have been mentioned, can be either relieved or removed? The answer may be made unhesitatingly in the affirmative. A tonic plan of treatment, judiciously employed, pure air, sun light, and suitable exercise, will restore the general health. The vegetable tonics will be serviceable, the mineral acids will do much good, but iron will be most advantageous: no known remedy, the author believes, will so aptly and so effectually meet the errors of the system which have been pointed out. What agent lends more vigour to the muscles, more efficiency to the organs of sanguification, or

greater assistance in the genesis of the blood globule?

When, together with dilatation, lymph, obstructing the circulation, and which must be removed, is present, iron should be administered in combination with iodine. The iodide of iron of the London Pharmacopœia answers exceedingly well. Two or three grains may be given twice or thrice daily, for weeks and months. It should be dissolved in distilled water, and may be advantageously combined with *Spiritus Myristicæ*. An iron wire, placed in the solution, supplies the place of any of the iron of the iodide which may become oxydised.

When there is no lymph to be removed, and the stomach will tolerate it, the compound mixture of iron will, in many instances, prove very serviceable. In cases combined with chlorosis or anæmia, this preparation is particularly efficacious. An ounce, or an ounce and a half, may be given daily for some weeks. It is desirable, with this preparation as well as with others, to intermit its use for a few days occasionally.

The potassio-tartrate, the citrate, the lactate, the tincture of the sesquichloride, and other preparations of iron, offer facilities for meeting peculiarities of disease or of constitution.

Collapse of the system, pallor of the countenance, and evident wasting, demand the use of wine.

The diet should be nutritious, including a daily allowance of animal food. Light puddings are useful. These may be composed of arrow-root, ground rice, tapioca, and similar farinaceous articles, together with an egg and milk.

Soups, much tea, coffee, or other slops, should be avoided, as they are calculated to aggravate a very frequent source of distress in cases of diseased heart; viz. flatulent distension of the stomach.

It may be well again to enter a caveat here against the use of iron in cases in which there are not grounds for a confident assurance that there is no inflammatory or subinflammatory action progressing in the heart, or its membranes and appendages. It is not the indiscriminate use of iron which the author recommends; it is the judicious and seasonable use of iron—a very different thing. It would be out of place were he here to insist upon the signs of inflammation, particularly as he has no new guides to offer in its discrimination. The furred tongue, increased distress, of a continuous character, and tenderness of the præcordia, more palpitation than is com-

mensurate with the additional resistance to the circulation, thirst, anorexia, tendency to delirium, scanty, high-coloured urine, will assist in the decision. With these symptoms there is probably excited action progressing in the heart. At all events, these symptoms forbid the use of iron, or other tonic treatment.

SECTION VIII.

Hypertrophy to be maintained at a point suited to the wants of the circulation.—A positive, though somewhat qualified good.—When exceeding this point, a positive evil : mode of treatment.—Deficient hypertrophy, an imperfect good : results of this condition, venous and organic congestion, dropsy.—The hypertrophied, but weak heart.

THE third great indication in the treatment of organic alteration of the heart, viz. the maintenance of hypertrophy, or the thickening of the walls of the heart, at that point suitable to the wants of the circulation, can be well fulfilled only by a plan of treatment varied according as the hypertrophy is disposed to exceed or to fall short of this point. The nature and the importance of hypertrophy have been already sufficiently explained.

When the patient's general health is good, and the constitution is sound, the hypertrophy will reach that height, in most instances, which the increased resistance to the circulation renders necessary.

It is when the hypertrophy reaches to this

point, and exactly counterpoises the increased resistance, neither rising above nor sinking below this standard, that the heart is in its most favourable condition ; the cause of increased resistance being still present. A great positive and unqualified evil, viz. a cause of increased resistance to the circulation, is here met with a positive though somewhat qualified good ; viz. hypertrophy to that extent exactly corresponding with the wants of the embarrassed circulation.

However, though hypertrophy, limited to the above-mentioned point, is a positive good, when it exceeds this it becomes a positive evil. The unduly enlarged heart displaces and incommodes other organs ; the unnecessary vehemence of action proves a source of disturbance to the patient, and the blood is propelled with undue violence through the arteries, the throbbing being experienced by the sufferer most painfully in the head. It should be remembered, that though hypertrophy is a salutary condition, it is, nevertheless, not a natural one. There is reason to believe, that when the increased thickening occurs in consequence of increased resistance to the circulation, it seldom exceeds the extent demanded by the occasion. When it does become excessive, it will generally be found that the

patient is robust, and abounding in blood. Perhaps, in these instances, the muscular part of the heart has been inflamed, and, as a result of this condition, there has been left a tendency to increased nutrition. The tendency to excessive hypertrophy is to be met by the application of leeches to the præcordia, moderate and unstimulating diet, abstinence from wine, and tonics including iron. Digitalis may be used. Colchicum, which has a decided sedative influence on the heart, may be very advantageously applied externally to the præcordia. Vesication, rubefaction, issues, and setons, and like means, are useful, and may be employed as occasion demands.

Deficient hypertrophy, there are good grounds for believing, is not an infrequent condition. When the hypertrophy does not reach to that point suited to the increased resistance to the heart, it is very obvious that the blood cannot be duly propelled along the arteries, and that it must accumulate first in the heart itself, causing farther dilatation, and then in the veins, and lastly, in the different organs of the body. When the increased resistance obtains in the right side of the heart, the right side is dilated, and then the venæ cavæ and their tributaries, including the subclavian and the hepatic veins. The systemic venous

circulation being thus obstructed, there arises congestion in the brain and other organs, and then general dropsy.

On the other hand, when, as is more common, the increased resistance holds in the left side of the heart, the accumulation takes place on that side, then in the pulmonary veins, and lastly in the lungs themselves; upon which there supervene, first, oppressed respiration, cough, frequently copious hæmoptysis, and subsequently dropsy of the lungs, which may occur to such an extent as to render the pulmonary structure a tremulous mass, like a jelly, as the author lately had an opportunity of observing.

This deficient hypertrophy, always accompanied by deficient vigour of the heart, will frequently be found to aggravate the distress of the patient. It is most frequently discovered in the cases of weakly and enfeebled persons.

Much may be done in such cases. The heart may be invigorated, and rendered a match for the opposition with which it has now to contend. After the observations which have been made upon dilatation, it is unnecessary to say much of the mode of treatment which is required. The same treatment will meet both cases. Iron, here as well as in dilatation, will be found of the

greatest value, and should be exhibited without delay, conjoined with suitable regimen, air, light, and exercise.

Besides deficient hypertrophy, there may exist a condition nearly allied, and giving rise to the same inconveniences; *i. e.* a sufficient volume of heart, but with deficient power. It may occur under such exciting causes as hæmorrhage, or weakening diseases.

This condition will be most properly met by the use of iron, and the same general tonic regimen which has been recommended in dilatation and deficient hypertrophy.

SECTION IX.

Other indications.—Relief of congestion of head, lungs, and abdominal viscera.—Local depletion not incompatible with invigorating treatment of the system.—The abstraction of blood should merely relieve the local evil.—Danger of affecting the system : Case.

IN the treatment of organic alteration of the heart, in addition to the three main indications which have been referred to in the preceding pages, other points of importance will be found to demand attention.

Congestion of the brain, of the lungs, of the liver, stomach, and bowels, will frequently display themselves by their respective signs of pain and oppression of head, cough, great dyspnœa, bloody sputa, with large erepitation, pain and fulness in the region of the liver, uneasiness of stomach, flatus, retching, and occasional vomiting of blood, diarrhœa, hæmorrhage from the bowels and uterus, and sense of fulness and distress in the abdomen.

The respective organs should be kept comparatively quiescent; their secretions should be gently

promoted ; and they may be relieved, strength permitting, by the local abstraction of blood, either by leeches or cupping-glasses.

The local abstraction of blood from a congested organ will frequently afford relief, and is found applicable in many cases. It is by no means incompatible with the employment of iron and an invigorating regimen. There is often great general debility, together with local congestion ; the latter condition requiring depletion, the former demanding good diet, tonics, &c.

Blood then may be abstracted locally, while iron is exhibited to fulfil the indications which have been already treated of.

As relief is the only end contemplated from the abstraction of blood, and as the body generally is little able to bear depletion, particularly in towns, the quantity of blood taken should be moderate, and sufficient only to meet the local evil, without extending a lowering influence to the system.

The utmost care should be exercised, that the quantity does not exceed this amount ; for when the abstraction of blood is so great as to tell upon the system generally, marked prostration of strength is liable to occur in a sudden manner, and injure both patient and practitioner. A case illustrating this danger occurred lately in the

author's practice. The patient had once been robust, but was, at the time in question, greatly enfeebled; the heart was much diseased, and there was great venous congestion: the sputa were bloody, and large crepitation was heard all over the thorax. A physician justly standing at the head of the profession, now consulted, recommended the application of the cupping-glasses, and the abstraction of a large quantity of blood, viz. ten ounces.

The blood was drawn, and for an hour or two the respiration was relieved, but the patient soon evinced signs of sinking, and died in the course of a few hours.

SECTION X.

CONCLUDING REMARKS.

THE foregoing observations cannot fail to suggest to the mind how numerous the points for consideration are, in cases of organic alteration of the heart. They serve to shew that organic alteration of the heart must not be studied alone, but in its manifold relations with disease in general.

The characters of this form of disease, and its numerous relations, must be comprehended by the practitioner who would either attain a full and scientific knowledge of it, or be enabled to treat it in a skilful and efficient manner.

The young practitioner cannot be too much alive to the importance of making a comprehensive and, at the same time, a minute examination of each case presented to him. With habits of strict and careful inquiry, he may confidently hope to achieve much good for his patient, and to earn for himself the satisfaction of having done his duty, and, in many instances, the well-placed gratitude and confidence of the sick.

Without such habits, he will lose many favour-

able opportunities to assist the system in its struggles with organic lesion, and permit advantages to pass from him totally unimproved. Doubtless he may be occasionally successful, yet this will be, as in the case of the empiric, the result of blind chance, the effect of accident ; and he can never experience that consciousness, so dear and so valued by the true son of science, that the good he has done, while it is a blessing to the patient, is a credit to the practitioner ; for it is the anticipated, the almost certain consequence of an intimate knowledge of disease, met by a skilful application of remedial agents.

SECTION XI.

CASES.

THE writer subjoins a few cases, which will illustrate how much cases of organic alteration of the heart may be improved, and how large a measure of health may be enjoyed by the subjects of this form of disease.

They will likewise prove what has been stated in the foregoing pages—viz. that iron may be most beneficially employed in some cases of organic alteration of the heart.

The cases are of comparatively recent occurrence, and notes of the progress of the patients have been carefully taken, so that the histories which have been given may be relied upon as correct, and are not mere reminiscences—a point which the author holds to be of considerable importance.

CASE I.—Richard C., æt. 17, well formed, a compositor, came under the writer's care last summer. The disease of the heart had been progressing for three years. It followed an attack of acute rheumatism.

The heart was much enlarged; the præcordial region was unduly prominent—to an unusually great extent. The hand, placed on the heart, felt a prolonged, heaving, swelling movement of the enlarged organ. A loud hissing sound was heard to accompany the systole: it was loudest at the left side of the heart and towards the apex. A purring thrill was felt to a slight extent by the hand. The pulse was feeble, compressible, slightly intermittent, and the artery was felt to fill suddenly, and to be suddenly emptied. The respiration was difficult.

The abdomen contained a considerable quantity of fluid, and the feet were swollen. The liver was tumid, and descended considerably below the false ribs. The skin and the eyes were of a faint yellow colour, from the presence of bile.

The treatment of the case commenced with the employment of the compound calomel pill, for the purpose of relieving the liver; with a solution of tartrate of potass in the infusion of gentian, to which was added sweet spirits of nitre, with the intention of producing slight catharsis, diuresis, and of strengthening the stomach.

These objects were obtained, and in the course of a few weeks both the jaundice and the dropsy disappeared.

The above-mentioned medicines were now discontinued, and the compound iron mixture was exhibited. At the same time the action of the bowels was promoted by the occasional employment of the compound aloetic pill.

No unpleasant symptoms followed, and before many weeks had passed, the general health had become greatly improved: the patient could walk with greater freedom, his respiration was more calm and easy, the action of the heart was less palpitating and excited: in a word, he was, to make use of the patient's own expression, "a great deal better."

Towards the end of autumn, the patient spent a fortnight in the country, continuing during that time to take his medicine.

He returned to town, much improved in appearance. His flesh had increased considerably in bulk, and he walked with freedom and animation.

Auscultation, however, still discovered the same hissing sound as at first, and the hand readily felt the swelling, heaving, movement of the heart.

The young man was now enabled to return to the printing-office, and to work daily for several hours, as a compositor.

It was resolved to push the advantage which

had been gained, and still further to invigorate the system by continuing the treatment.

The iron, together with the aloetic pill, was continued, and, at the close of the year, the patient was steadily engaged twelve hours daily at his occupation.

The medicines have been continued with scarcely an intermission, but the patient has happily become so robust and well, that he has of late made his visits to the writer few and far between.

It was about ten days ago that he last presented himself, and he excused his long absence by saying he was very busy at the printing-office.

His pulse was then regular, comparatively vigorous; the action of the heart was forcible, but steady, and not multitudinous, and caused the patient no annoyance or inconvenience; indeed, scarcely attracting any attention. The respiration was perfectly easy; the hissing sound was still loud, but, if the writer can trust to his memory, not so loud as it was last summer. A medical friend who examined the patient at the same time, and who had heard the hissing sound last summer, was of the same opinion respecting its diminished intensity.

The patient is now robust in appearance as

well as in reality, and his face displays the bright bloom of youthful health.

In this case a patescent condition of the mitral valve, and probably adhesions of the pericardium, were the cause of increased resistance to the circulation.

CASE II.—Mrs. Wren, aged 40, tall, broad-made, native of Ireland, temperate, applied to the writer last June. She was in a state of great debility and bodily suffering. Her breathing was so rapid and laboured that she could articulate only a word or two together: she would pause for an instant, and then, with great exertion, proceeded to say a word or two more. On entering the room she would gasp with exertion, and almost involuntarily stagger to a chair. She complained of constant palpitation of the heart, of sense of constriction in the region of that organ, and of suffocation. The impulse of the heart, though weak, was more than usually extended; no murmur was heard, but the sounds of the heart could not be distinctly heard on account of the rapid movements of the chest and the noise of the respiration. The breathing was very rapid and laboured, interrupted almost every moment by hard, rending, and prolonged cough.

ing. The vesicular murmur of the lungs was greatly obscured by mucous rattle; percussion under clavicles was somewhat dull. The patient expectorated much yellow muco-purulent matter, frequently coloured with blood. She was much wasted; the fatty deposit had been removed from the surface, and had left the muscles almost naked and very prominent; in many parts the bones seemed to be covered merely with a loose wrapping of dry tough skin. The pulse was very intermittent, exceedingly weak, and easily pressed out with the tip of the finger.

In order to relieve the violence of the cough, and the irritable condition of the air-tubes, Dover's powder was prescribed at the commencement. This had the effect of abating the cough, of causing the expectoration to be brought up more readily, and of relieving, to a slight extent, the respiration. The palpitation continued the same. A warm liniment of turpentine was applied all over the thorax with advantage. With a view to strengthening the system, and also of giving tone to the secreting vessels of the air-tubes, tannin, dissolved in water in combination with nitric acid, was exhibited. The object was attained; the expectoration was much diminished, without producing any unpleasant effects. The

cough, however, still pressing, and the dyspnœa being urgent, morphia was administered from time to time. Iron was now employed. The patient, who had hitherto believed she was dying, and who really looked as if she had not many weeks of her agony to suffer, now began to feel stronger, and to gather a little hope. The writer could now with less feeling of difficulty say "he hoped" (he had not hitherto said "he thought,") she would do well. The palpitation became less oppressive, the respiration also much less rapid, the countenance lost much of that look of anxiety so characteristic of disease of the heart. The pulse became less intermittent, and acquired strength and vigour. The iron was continued; a dose of morphia being occasionally administered on any aggravation of dyspnœa; the patient walked with firmness, could stand erect, would smile, and finish her sentence without a pause. The contour of the body was restored, the muscles became larger, and the sallow countenance was exchanged for one certainly not blooming, yet possessed of a somewhat reddish hue, which comported not indifferently with the patient's cheerful expression. This person, at the end of January, dispensed with the use of medicine, as she considered herself well. She was desired to

inform the writer if she should again suffer, but he has not heard anything more of her. He therefore concludes that she continues to be thus greatly relieved.

In this case the heart was dilated, and probably, instead of being thickened, was attenuated in its walls. The iron gave strength to the debilitated and dilated organ, and enabled it to propel the blood along the pulmonary artery, despite the impediment to its transit, which existed in the lungs from the presence of chronic catarrh.

CASE III.—Martha Salisbury, single, 25 years of age, tall and spare, suffered repeated attacks of inflammation in the thorax ten years ago. Soon after this, she was much troubled with palpitation of the heart, which has continued to recur. She came under the writer's care last August. She then complained of violent palpitation, occasionally becoming so aggravated as to cause her much alarm, and to make her stand still wherever she might happen to be. The impulse of the heart was very much increased, communicating a forcible succussion to the left side of the thorax. The movement of the heart was particularly

heaving and voluminous. No murmur was heard. The pulse was 116, small, hard, and intermittent every eight or ten beats. The respiration was occasionally difficult; she could not lie with her head low in bed, and required her shoulders to be elevated. Six leeches were applied over the region of the heart, and a few doses of digitalis were administered. Subsequently a blister was applied over the same spot. This treatment was followed by little or no amendment. On the 26th September, the iron mixture was exhibited, and from that time the patient improved in a surprising manner up to the 14th October, when the following note of the case was taken:—"Is much better, feels stronger, is more cheerful; complexion is more healthy; says she is little troubled with palpitation, and the medicine sensibly improves her health: when it is omitted, feels worse in consequence." In December, she is reported to be "improving in health." At present, the patient, who is still under the writer's care, looks remarkably well, and were the hand of a physician unacquainted with the case to be withheld from the pulse and the thorax, he would, the writer feels assured, be inclined to regard the patient as a healthy young woman.

P.S. Within the last few days the patient has expressed her wish to take no more medicine, for, as she says, she is now well.

Accordingly, her medicine has been discontinued ; at least for the present.

CASE IV.—Mrs. M., æt. 43, the subject of old distortion of the spine and thorax, by which the left side is cramped, has for eleven years suffered constant palpitation of the heart, liable to occasional exacerbations, and pain and distress in the præcordial region. She came under the writer's care last January.

The heart was displaced considerably towards the right side, and was increased in volume ; the impulse was decidedly increased : the sounds were dullish, and unaccompanied by any bellows sound.

The respiration was hurried and distressing ; her sleep was disturbed by the violent "knocking" of the heart. She complained of great debility, and was the subject of low spirits. The pulse was weak, small, but regular.

The primæ viæ were put under the action of the compound rhubarb pill for some days. Iron was then administered. In the course of a few weeks she reported herself as much improved in

her general health. Her appetite, which before had been indifferent, was good ; her strength was much increased, and the palpitation was less multitudinous and distressing. She had not been so well for many months.

The iron was continued. Two weeks ago the patient said she was now so well that she did not think there was any occasion for taking medicine at all. The action of the heart was still undue in force and in extent, but it was steady, and seemed just at that point suited to overcome the increased resistance to the circulation of the blood produced by the distortion of the spine and thorax.

THE END.

